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To: DES SBCC
Subject: Strengthen Clean Energy Codes

External Email

Chair Anthony Doan, State Building Code Council
PO Box 41449
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To Chair Anthony Doan;

I apologize I will not be able to attend the public hearing on Friday and give my testimony in person, but I hope this commentary will suffice.

I write this email in support of the Thurston County Climate Action's urgent plea to adopt the proposed energy code updates, because moving away from methane gas in our buildings is important for addressing the climate crisis / health / equity / and many other issues that concern our community. As a born and raised Olympian, I care very much about making this positive impact.

Homes and buildings are one of the largest and fastest-growing sources of climate pollution in Washington — and we're consuming more and more energy as our state's population increases. These code updates ensure that, as we are building new homes, we are doing so sustainably and responsibly, while protecting public health and safety.

There are opportunities to reduce emissions now by transitioning off of polluting fracked gas to high efficiency heat pumps that run on clean, renewable electricity. Strong codes build resiliency. Strong codes mean better benefits. We must start the transition toward clean energy in our homes today. Below are some outlined perspectives to consider as you make your decision.

Environmental and climate perspectives;

Homes and buildings are the fastest growing source of carbon emissions in Washington State, with this increase largely attributable to the direct use of methane gas in appliances like hot water heaters and furnaces. Washington's 2021 State Energy Strategy found that electrifying homes and buildings will be the lowest-cost pathway to meeting the state's climate goals of reducing emissions 95% from 1990 levels by 2050.

A new Stanford-led study reveals that methane leaking from gas-burning stoves installed in U.S. homes, even when they are turned off, has the same negative impact on the environment as the carbon dioxide emitted from around 500,000 gasoline-powered vehicles. Burning fossil fuels in the buildings sector in WA produced 18 million metric tons (MMT) of carbon dioxide equivalent (CO₂e) in 2018, the equivalent to the annual emissions from 3,957,182 cars or 5 coal plants.

While Washington has a moratorium on fracked gas sites within our states, the majority of the gas piped into Washington is fracked gas from other states or Canada. Fracking and transporting fossil gas can lead to methane leaks, which may have even led to the recent spike on global methane emissions. These

code proposals are also important for health reasons because they will play a key role in disincentivizing gas cooking - which many studies have documented is harmful for health - due to the economics of hooking up gas just for cooking. Gas stoves release unburned methane through leaks even when they are off; research shows that yearly leaks from all gas stoves in the U.S. could have as much of a climate impact as emissions from 500,000 passenger vehicles.

Building industry perspectives;

All-electric homes and buildings are a robust and market-ready solution. Buildings are long lived assets and it is much more cost effective to use best practices from the start than to retrofit later.

Because gas-powered furnaces and water heaters last 10-25 years, continuing to build with these appliances locks in decades of emissions just as we are pledging to reduce them. As building industry professionals, we want to construct homes that stand the test of time to help build a sustainable, zero-emissions future for Washington. While every project varies, the bottom line is that highly efficient all-electric buildings typically cost less to operate once built, while also helping to avert public health and climate costs. Energy efficient homes are more resilient in the face of climate change. Under extreme weather conditions, a highly insulated home will do a far better job at maintaining habitable temperatures. Plus, more efficient homes will have lower energy costs and in turn lower energy burdens for their residents.

Today's modern electric appliances run on our clean electricity and they use less energy overall than gas-fired equipment because electric equipment is more efficient. Electric heat pumps and heat-pump water heaters are 200-400% more energy efficient than gas-fired equipment, according to the Southwest Energy Efficiency Project. Replacing gas heating with electric heat pumps also provides air conditioning, as heat pumps can provide both. Today's electric appliances are light years better than early generations. Heat pumps work well in Washington's varied climate zones, including the colder eastern part of the state. There are cold-climate heat pumps that work well in temperatures as low as 5 degrees F.

Building all-electric eliminates the cost of, and need to, run gas distribution lines or put in gas meters, piping and venting.

Health care, air quality, equity, & faith perspectives;

Gas extraction from fracking largely takes place on or near tribal or First Nations lands, creating disproportionate risk to indigenous communities for air pollution, water contamination, and overuse of water. As someone who works at a Native American middle school and closely with the Nisqually Tribe, this is something I feel especially concerned about.

People spend the majority of their time indoors—up to 90% of their lives. And yet, indoor air is estimated by the EPA to be two to five times more polluted than outdoor air. An estimated \$110 million dollars in health impacts annually can be attributed to burning fossil fuels in commercial buildings in Washington. The proposed code changes move us away from burning fossil fuels in buildings and toward cleaner, more efficient sources that heat our buildings and do not contribute to hazardous air quality impacts. Research shows buildings are also the primary cause of combustion pollution-related early deaths in Washington state due to their contributions to air pollution (PM2.5 and ozone). Methane gas cooking appliances emit nitrogen oxides (NOx), carbon monoxide (CO), fine particulate matter (PM 2.5), ultrafine particles, and formaldehyde, which compromise indoor air quality—even when they're operating correctly.

Homes with gas stoves have 50 percent to over 400 percent higher nitrogen dioxide levels in their indoor air than homes with electric stoves, which can lead to heart failure and asthma. One hour of cooking on a gas stove produces nitrogen dioxide levels that would be illegal if found outdoors.

Children in homes with gas stoves have a 42 percent increased risk of asthma symptoms. Combustion of fossil fuels in homes and buildings also creates outdoor air pollution - buildings in Washington generate more than two times as much nitrogen oxide (NOx) as power plants do.

Communities who are suffering worst from pollution — often low-income, communities of color, and linguistically-isolated people — have higher risks of death from particle pollution, in part due to the historical impacts of redlining that have led communities of color to be pushed to live in places with greater exposure to air pollution. As a para educator who works with these populations, I care very much about this!!

Lower-income households may also be at higher risk of exposure to gas stove pollution because of smaller unit sizes, more people per home, older homes with poorer ventilation, and using stoves or ovens for supplemental heat. The COVID-19 pandemic creates additional urgency to reduce the use of gas in buildings - small increases in long-term exposure to higher levels of nitrogen oxide (NOx) and particulate matter (PM2.5) are correlated with higher risks of death from COVID-19, particularly for people over the age of 65.

The use of fossil gas in buildings also poses safety risks to communities due to the potential for gas leaks and pipeline explosions. Over the past five years, an “accident or incident” has occurred on the U.S. gas distribution systems on average every six days, causing dozens of fatalities and hundreds of injuries.

Earthquake risk makes Washington state particularly vulnerable because highly pressurized gas transmission pipelines run a high risk of exploding during earthquakes, and gas is responsible for at least 20% of post-earthquake fire ignitions. Using highly efficient heat pumps with cooling capabilities will be essential to keeping vulnerable people safe during increasingly extreme and deadly heat waves or wildfires, especially for homes that otherwise would not be able to afford air conditioning and for people who are bedridden, which puts them at the greatest risk of heat-related health impacts.

Local governments are tasked with helping residents deal with climate impacts including rising sea levels, higher summer temperatures, increased wildfire damage and smoke, more frequent droughts and extreme weather events, and more. Because of these climate impacts, local governments are constantly working on both climate mitigation strategies, both to set their own targets and to help achieve statewide goals, and buildings are among the top sources of emissions for local communities. Addressing fossil fuel use in homes is crucial for local governments to meet climate commitments, protect community health and safety, lower costs for builders and tenants, and create a green energy economy that will spur the creation of high-road jobs. Cities and counties across Washington are already taking action on gas - Seattle, Shoreline, Tacoma, Olympia, and Bellingham have already committed to moving towards all-electric buildings by adopting similar code changes, with many others ready to follow suit. Local governments need support from the State Building Code Council to set these standards across the board, reducing the burden on local government staff and making sure that there's an even playing field for cities and counties that take action on climate.

Housing perspectives;

Affordable housing is crucial to helping low-income residents adapt to the climate crisis - and those residents deserve homes that will protect their health and safety from air and climate pollution. Low-income residents and other underserved communities are disproportionately impacted by the health impacts of gas – Black, Latinx, Asian, and low-income communities have higher risks of death from particle pollution.

Many low-income households in the Pacific Northwest cannot afford air conditioning, which is essential to keeping vulnerable people safe during increasingly extreme and deadly heat waves. Heat pumps provide both heating and cooling.

Energy codes focus on how energy is used in homes and buildings, and strengthening energy codes is a key way to minimize energy waste. Constructing efficient and quality buildings means lower energy bills for tenants and residents.

If we don't help create opportunities for low-income customers to move off fossil fuels now, they will be left holding the bill for any stranded infrastructure down the line after wealthier residents have chosen to move off the gas system.

Labor perspectives;

Workers are just as impacted by the health and safety impacts of climate change as everyone else – we need to be working towards a just transition that both offers high-road job opportunities and moves us off fossil fuels.

As our homes and buildings are increasingly run on clean renewable electricity, the technical expertise and distribution of trade work in the construction and design trades is expected to transition as well. Transitioning homes and buildings to clean electric heating, water heating and cooking can sustain a significant workforce over many years. Jobs include the HVAC work — both in gas removal and electric appliance installs, service and maintenance — as well as construction jobs associated with building modifications; and electrical work associated with new renewable energy and grid infrastructure.

A study by UCLA found that electrifying California's buildings over the next 25 years would create 8 times as many jobs as may be lost in the gas industry, supporting an additional 100,000 full-time jobs in construction, manufacturing and the energy sector each year. Washington would expect to see jobs numbers for our state proportional to our population and building stock.

Adopting stronger codes keeps our construction workforce competitive and using best practices in design strategies and technology applications.

Thank you for taking the time to review my concerns. I hope this will be convincing enough for you to pass these clean energy codes, and make a positive impact on the place I call home. I stand with my students, my teachers, my family, my friends, and my community with great pride and big heart.

-Katherine Cox